2007 Alabama A&M University and Tuskegee University and Auburn University Combined Research Annual Report

Status: Accepted
Date Accepted: 05/15/08

2007 Alabama A&M University and Tuskegee University and Auburn University Combined Research Annual Report

I. Report Overview

1. Executive Summary

Alabama is fortunate to have three land-grant universities - Alabama A&M University, Auburn University, and Tuskegee University - with distinct programs at each institution based on clientele needs. As administrators of the Alabama Agricultural Research Program (AARP), we are working cooperatively to enhance partnerships among our universities in all areas of research, education, and extension; with other universities in the region, nationally, and internationally; and with state and federal laboratories and agencies. Alabama's three land-grant universities have played key roles in the development of agricultural enterprises in Alabama. The agricultural research programs of these universities have formed a partnership, via a memorandum of understanding, known as the Alabama Agricultural Land-Grant Alliance (AALGA) to better address critical issues in food, agriculture, and natural resources in the state, region, and nation through multidisciplinary, multi-institutional, science-based teams that focus on the opportunities and the challenges facing farmers, consumers and agribusinesses. AALGA also seeks to provide quality education that prepares professionals for career opportunities in food, agriculture, environment, bioenergy, and natural resources in the state, region, and nation. AALGA has received state funding in support of this partnership annually since FY 2002.

In recognition of the importance of international agriculture programs in promoting the competitiveness of U.S. agriculture in the global market place, Alabama's agricultural research programs support and participate in the efforts of international program offices at the three institutions.

This Annual Report of Accomplishments and Results is a reflection of research activities for the 2007 fiscal year as reported in the Plan of Work required by the Agricultural Research, Extension and Education Reform Act (AREERA) of 1998.

Several multi-disciplinary research projects are grouped under the Key Program Components associated with each state program.

Total Actual Amount of professional FTEs/SYs for this State

Year:2007	Extension		Research	
	1862	1890	1862	1890
Plan	6.9	0.0	92.5	56.3
Actual	6.9	0.0	88.4	65.0

II. Merit Review Process

1. The Merit Review Process that was Employed for this year

- Internal University Panel

2. Brief Explanation

Merit evaluations were conducted on each project by a panel of faculty, department chairs and administrators as appropriate. Programs that encompass several projects, particularly those with identified funding sources (i.e., the AAES Hatch/Multistate Funding Program) were evaluated by an administrative panel to allocate continued funding.

III. Stakeholder Input

1. Actions taken to seek stakeholder input that encouraged their participation

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals
- Survey of the general public

Brief Explanation

A number of stakeholder groups have previously been identified, and input was collected through regular meetings with discussion and feedback. At Auburn University, several commodity group committees were used to evaluate on-going research and new research proposals. Direct feedback to researchers and AARP administration was through projects that were funded and through discussion about new and emerging issues.

2(A). A brief statement of the process that was used by the recipient institution to identify individuals and groups stakeholders and to collect input from them

1. Method to identify individuals and groups

- Use Advisory Committees
- Use Internal Focus Groups
- Use External Focus Groups
- Open Listening Sessions
- Use Surveys

Brief Explanation

Several groups have been established and are continuing, such as advisory committees that encompass producer and consumer groups. Surveys were conducted through various AAES newsletters, and input was sought from the general public.

2(B). A brief statement of the process that was used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them

1. Methods for collecting Stakeholder Input

- Meeting with traditional Stakeholder groups
- Survey of traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Survey of traditional Stakeholder individuals
- Meeting with the general public (open meeting advertised to all)
- Survey specifically with non-traditional individuals
- Survey of selected individuals from the general public

Brief Explanation

A number of stakeholder groups have previously been identified, and input was collected through regular meetings with discussion and feedback. At Auburn University, several commodity groups were involved in the evaluation of on-going research and new research proposals. Direct feedback to researchers and AARP administration was through the projects that were funded and through discussion about new and emerging issues.

3. A statement of how the input was considered

- To Identify Emerging Issues
- Redirect Research Programs
- In the Staff Hiring Process
- To Set Priorities

Brief Explanation

Input from stakeholders was used to set program priorities and to identify emerging issues relevant to agricultural needs and issues.

Brief Explanation of what you learned from your Stakeholders

Water issues are becoming more and more important now, especially with the historically severe drought conditions during this last year. Environmental issues in relation to agriculture are critical; energy security and long term supply is vital to the state's economy.

IV. Expenditure Summary

Institution Name: Alabama A&M University

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	0	2097010

Institution Name: Auburn University

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	6877116	0

Institution Name: Tuskegee University

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	0	2077880

Institution Name: Alabama A&M University

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	0	0	0	2096979
Actual Matching	0	0	0	0
Actual All Other	0	0	0	0
Total Actual Expended	0	0	7221568	0

Institution Name: Auburn University

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	0	0	3610784	0
Actual Matching	0	0	3610784	0
Actual All Other	0	0	0	0
Total Actual Expended	0	0	7221568	0

Institution Name: Tuskegee University

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	0	0	0	2077873
Actual Matching	0	0	0	0
Actual All Other	0	0	0	0
Total Actual Expended	0	0	7221568	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous years				
Carryover	0	0	0	0

V. Planned Program Table of Content

S. NO.	PROGRAM NAME
1	Maintaining agricultural production systems that are highly competitive in the global economy
2	Assuring the safety, security and abundance of our food supply
3	Promoting a healthy, well-nourished population
4	Sustaining greater harmony between agriculture and the environment
5	Supporting and enhancing economic opportunities and self-empowerment for families and communities

Program #1

V(A). Planned Program (Summary)

1. Name of the Planned Program

Maintaining agricultural production systems that are highly competitive in the global economy

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
125	Agroforestry			4%	4%
202	Plant Genetic Resources			15%	15%
205	Plant Management Systems			19%	19%
216	Integrated Pest Management Systems			20%	20%
302	Nutrient Utilization in Animals			20%	20%
311	Animal Diseases			10%	10%
402	Engineering Systems and Equipment			4%	4%
502	New and Improved Food Products			3%	3%
601	Marketing and Distribution Practices			5%	5%
	Total			100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	2.0	0.0	51.1	20.6
Actual	0.0	0.0	47.0	29.3

2. Institution Name: **Alabama A&M University**

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	0	607820
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

2. Institution Name: **Auburn University**

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	0	1952438	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	1952438	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

2. Institution Name: **Tuskegee University**

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	0	0	919714
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Phytochemicals and antioxidants were studied for their functions in functional foods using food crops such as purslane, sweet potato greens, and muscadine grapes. Several isoflavones were identified in the purslane and sweet potato greens. Sensory research analyses have shown that these novel vegetables are generally accepted in the diet. This information is being used in the implementation of community nutrition education programs.

Ways to increase use of tagatose in food, particularly as part of cookie recipes are being developed.

State-of-the-art technology was used to broaden sweetpotato germplasm selection criteria for the selection and evaluation of germplasm for potential use for the production of ethanol.

Sodium azide was evaluated to replace methyl bromide, which would allow longer production duration following treatment for soilborne pests and pathogens.

A method for determining the phytochemical contents of peanuts was developed. This method may be vital to consumers seeking to enhance their nutritional planning.

Genes conferring high fiber quality in cotton was identified.

The functional and evolutionary aspect of the plant-reniform nematode interactions was identified through the use of genomics and bioinformatics.

In-house amendments to poultry litter were evaluated for their effectiveness in reducing ammonia emissions contributing to improved economic viability of poultry production facilities.

Turkey genome are mapped for genes that are implicated in cardiomyopathy with the ultimate goal of developing a genetic model for human heart disease in African Americans.

Varying levels of dietary protein in lactating cows, between 13% and current recommendations of 17%, were found not to affect milk quality or quantity. Such findings will make it possible to reduce production costs.

Alternative feeds such as kudzu, and feeds supplemented with copper were found to increase the profitability of goat production.

70 advanced breeding lines of canola have been developed.

Methods for inland shrimp production were developed. Research has helped shrimp farmers sustain survival rates above 60%.

Best Management Practices (BMPs) were developed for aquaculture to minimize the environmental impact of aquaculture.

Diagnostic methods for fish diseases were developed.

Researchers at Tuskegee University are using of both soil enzyme assays and microbial diversity measurements to evaluate the effects of tillage and cropping practices on water quality, selected soil factors and enzyme activities in 8 watersheds in Alabama.

Water quality tests were performed of well water samples for Alabama citizens.

the educational deficit of agricultural biotechnology in underserved communities of the south was addressed. Teachers and, through them, more than 1000 high school students located in underserved communities received training and/or teaching kits in biotechnology.

Several vegetable and medicinal type crops were demonstrated to limited-resource farmers via activities/field days, workshops, and one-day symposia.

Problems associated with loss of family property when an individual dies without a will were evaluated.

Mentorship was provided to minority high school students through the Summer Apprenticeship Program. This program allows rising high school seniors and juniors to work alongside the scientists in their laboratories during the summer to expose the students to scientific research. This has resulted in increased high school student interest in the sciences and subsequent enrollment in these disciplines in college.

2. Brief description of the target audience

Extension specialists, county agents, producers (particularly those that are innovative), all producers in the state, students (both K-12 and at our institutions), all state citizens. 48,000 people are said to be directly involved in farming; while Alabama's agribusiness industries account for 476,000 jobs.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	**Target**	**Target**	**Target**	**Target**
Plan	2000	12000	2000	8000
2007	2000	12000	2000	8000

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	50	50

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Publications

Year	Target	Actual
2007	50	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	Market value of agricultural products ($ billion) (2002 = $3.26 bil). Program success will be indicated if market value of AL ag products stay level or increase. (Medium term outcome)
2	Number of producers (ALFA cites 48,000, Apr. 2006). Program success will be reflected by little or no change in size of the population of producers. (Long-term)
3	Average producer age (2002 = 56.6). Program success will be indicated by declining or no change in the average producer age. (Long-term)

Outcome #1

1. Outcome Measures

Market value of agricultural products ($ billion) (2002 = $3.26 bil). Program success will be indicated if market value of AL ag products stay level or increase. (Medium term outcome)

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment
125	Agroforestry
202	Plant Genetic Resources
302	Nutrient Utilization in Animals
601	Marketing and Distribution Practices
216	Integrated Pest Management Systems
502	New and Improved Food Products
205	Plant Management Systems
311	Animal Diseases

Outcome #2

1. Outcome Measures

Number of producers (ALFA cites 48,000, Apr. 2006). Program success will be reflected by little or no change in size of the population of producers. (Long-term)

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:
Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	47900	47900

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
311	Animal Diseases
205	Plant Management Systems
601	Marketing and Distribution Practices
125	Agroforestry
202	Plant Genetic Resources
302	Nutrient Utilization in Animals
502	New and Improved Food Products
402	Engineering Systems and Equipment

Outcome #3

1. Outcome Measures
Average producer age (2002 = 56.6). Program success will be indicated by declining or no change in the average producer age. (Long-term)

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:
Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	56	56

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
402	Engineering Systems and Equipment
601	Marketing and Distribution Practices
205	Plant Management Systems
311	Animal Diseases
202	Plant Genetic Resources
216	Integrated Pest Management Systems
502	New and Improved Food Products
125	Agroforestry

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Programatic Challenges
- Populations changes (immigration,new cultural groupings,etc.)

Brief Explanation

2007 was an extremely dry year. Such historical drought certainly contributed to lower agricultural production. The change in the energy sector of the economy has had a large impact on agriculture. While crop-based agriculture was affected by drought, crop growers were largely ahead as the prices of grains and other crops increased drastically in the last year. However, the increase in prices of corn, soybean, and other crops led to major increases in the cost of feed, which adversely affected the poultry, beef, dairy, egg, and aquaculture industries.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Retrospective (post program)
- During (during program)

Evaluation Results

Specific projects that comprise the Planned Program were evaluated by departmental leaders. Overview of programs was evaluated by institution leaders.

Key Items of Evaluation

Program #2

V(A). Planned Program (Summary)

1. Name of the Planned Program

Assuring the safety, security and abundance of our food supply

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
502	New and Improved Food Products	18%		18%	18%
503	Quality Maintenance in Storing and Marketing Food Products	15%		15%	15%
601	Economics of Agricultural Production and Farm Management	25%		25%	25%
603	Market Economics	14%		14%	14%
712	Protect Food from Contamination by Pathogenic Microorgani	28%		28%	28%
	Total	100%		100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	1.9	0.0	6.8	10.4
Actual	1.9	0.0	6.8	10.4

2. Institution Name: **Alabama A&M University**

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	0	243128
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

2. Institution Name: **Auburn University**

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	0	245076	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	245076	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

2. Institution Name: **Tuskegee University**

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	0	0	204381
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The safety of the food supply is a major concern to consumers, distributors, processors, producers, suppliers, and policymakers. All of Alabama's land-grant universities are striving to meet those demands and to address current and emerging food safety, food quality, nutrition, and health issues, particularly as they relate to consumers, society, industry, and regulatory concerns.

Scientists at Auburn University continue with efforts to rapidly and precisely detect those microorganisms in food that have the potential to cause illness. Scientists at Tuskegee University have continued to focus on research programs that are aimed at developing methods to reduce pesticide usage and to prolong storage of fruits and vegetables. Other researchers are using natural anti-microbial agents to control food borne pathogens. Researchers at Alabama A&M University remain focused on finding solutions to the problem of allergenicity of peanuts and to improving the texture, tenderness, shelf-life, and taste of poultry meat.

The success of the research efforts in this area has resulted in a safer fresh food supply. Outcomes of the metabolic fat control study are relevant to human dietary concerns.

Alabama A&M University scientists evaluated strategies to increase the efficiency of encapsulated butylated hydroxyanisole (BHA) activity in contaminated meats. Extending the shelf-life of ground meat increases the profit margin of producers without increasing the unit price to consumers. Several dyes were tested for their proficiency in differentiating the individual leaves of liposomes and the presence of encapsulated BHA.

At Auburn University, researchers are looking at ways to consistently and accurately monitor Campylobacter species populations in poultry flocks and poultry processing plants. Since these bacteria are the most common cause of human gastroenteritis, efficient monitoring can be important for implementation of rapid and appropriate interventions.

Researchers at Auburn University are developing Raman and Fluorescence Biosensing technology for the detection of Foodborne Pathogens such as Salmonella spp. Successful implementation of the developed technology could rapidly and unambiguously detect/identify food-borne bacterial pathogens. The food industry in the state of Alabama has been greatly benefited. A statewide warning system through the rapid detection of bio-pathogens is being established.

Researchers at Tuskegee University continue to focus on biological methods in controlling post-harvest storage pests. The orientation of irradiated fruits and vegetables following low dose ultraviolet light –C treatment induced resistance to decay of selected fruits and vegetables. This reduces the chemical application to prolong shelf-life and reduce post-harvest losses.

Research is continuing on microbial inactivation by combining ultrasonification with chlorine dioxide solution treatment of fruits and vegetables. Such treatment preserves the nutrition and flavor of fresh produce while efficiently reducing bacterial populations. Salmonella species and E. coli are among the bacteria that are inactivated with this treatment, which could be used throughout the food industry to increase food safety and reduce the incidence of product recalls.

Pregnant women are faced with conflicting advice about fish consumption. Omega-3 fatty acids found in fish are needed for optimal neural development of the unborn child; however, fish may also be contaminated with mercury that has adverse effects on the developing fetus. Auburn University researchers are clarifying the degree of risk to pregnant women consuming fish.

2. Brief description of the target audience

Extension specialists, county agents, producers (particularly those that are innovative), processors, food industry personnel, students (both K-12 and at our institutions), all state citizens.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	700	1100	120	700
2007	700	1100	120	700

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	40	40

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- publications

Year	Target	Actual
2007	13	23

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	Decreased incidence of cases of food poisoning (AL state stats, % deaths from Salmonella and other intestinal infections in 2004 = 1.6%). Program success will be indicated by a decline or no change in this incidence. (Short-term outcome)
2	New technology(-ies) developed to monitor microbial contaminants. (Medium term outcome)
3	New professionals in workforce with training in food safety and security. (Long-term)

Outcome #1

1. Outcome Measures

Decreased incidence of cases of food poisoning (AL state stats, % deaths from Salmonella and other intestinal infections in 2004 = 1.6%). Program success will be indicated by a decline or no change in this incidence. (Short-term outcome)

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
502	New and Improved Food Products
603	Market Economics
601	Economics of Agricultural Production and Farm Management
503	Quality Maintenance in Storing and Marketing Food Products
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxi

Outcome #2

1. Outcome Measures

New technology(-ies) developed to monitor microbial contaminants. (Medium term outcome)

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxi
601	Economics of Agricultural Production and Farm Management
603	Market Economics
502	New and Improved Food Products
503	Quality Maintenance in Storing and Marketing Food Products

Outcome #3

1. Outcome Measures

New professionals in workforce with training in food safety and security.
(Long-term)

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxi
601	Economics of Agricultural Production and Farm Management
502	New and Improved Food Products
503	Quality Maintenance in Storing and Marketing Food Products
603	Market Economics

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Programatic Challenges
- Populations changes (immigration,new cultural groupings,etc.)
- Other (catastrophic food poisoning)

Brief Explanation

The drought had much impact on fresh vegetable quality.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Retrospective (post program)
- During (during program)

Evaluation Results

Satisfactory results were achieved.

Key Items of Evaluation

Program #3

V(A). Planned Program (Summary)

1. Name of the Planned Program

Promoting a healthy, well-nourished population

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
701	Nutrient Composition of Food			29%	29%
702	Requirements and Function of Nutrients and Other Food Cor			25%	25%
703	Nutrition Education and Behavior			19%	19%
711	Ensure Food Products Free of Harmful Chemicals, Including			2%	2%
721	Insects and Other Pests Affecting Humans			17%	17%
724	Healthy Lifestyle			8%	8%
	Total			100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	6.7	6.5
Actual	0.0	0.0	6.7	6.5

2. Institution Name: Alabama A&M University

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	0	395083
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

2. Institution Name: Auburn University

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	0	273668	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	273668	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

2. Institution Name: **Tuskegee University**

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	0	0	204381
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Our research efforts aim at protecting and enhancing the health of Alabama citizens. Through understanding both societal issues affecting consumers' overall diet-related health and the relationship between diet and specific body function, better quality diets, including increased utilization of food crops and the development of dietary guidelines based on ethnicity, age, and consumption preferences, can be developed.

Tuskegee University scientists have continued to employ clinical as well as food and nutrition education strategies in efforts to reduce the risk of CVD in African-American population in the Black Belt region. Food and nutrition educational materials that focus on how to lower CVD through proper diet were developed by Tuskegee University through focus groups and are being distributed in the target communities. Workshops have been conducted to educate local health leaders and the general public in "Fighting Heart Disease with Nutrifoods"

Auburn University researchers have determined that men and women who regularly consume snacks have significantly higher energy, protein, carbohydrate and total fat intake, which is associated with the aging process. Taken together, results suggest that while snacking can promote energy imbalance resulting in obesity among other age groups, it may offset malnutrition in elderly individuals.

Alabama has one of the highest rates of obesity in the US. Techniques were developed to assess weight status among young adults/college students.

Bioactive components in functional foods were characterized for a healthy lifestyle.

Avian influenza viruses (AIVs) were investigated in wild ducks in the South Eastern United States. Wild free flying ducks are a natural host for AIVs and are known to spread the virus around the world. Therefore, the local surveys are a first line of defense against AIV infection in poultry and people.

Arthropod populations can significantly affect human and animal health in Alabama. Researchers at Auburn University have collected information regarding the occurrence and status of mosquitoes, ticks, and their associated diseases, and shared with local and state personnel, and various use groups concerning Lyme disease and its diagnosis. Close contact has been maintained with the Alabama Department of Public Health and a statewide surveillance program for mosquito-borne diseases in Alabama.

Diabetes is one of the most widespread diseases in Alabama. Auburn University researchers examined factors that affect insulin sensitivity or glucose homeostasis as related to diabetes.

2. Brief description of the target audience

All state citizens, particularly targeted groups of high-risk citizens. Students (K through 12; college groups). Food producers and marketers.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	2000	18000	3000	7000
2007	2000	18000	3000	7000

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- publications

Year	Target	Actual
2007	7	10

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	New professionals in the workforce with training in nutrition and in areas related to healthful lifestyle choices. (Medium term outcome)
2	Incidence of hypertension and obesity in teenagers (AL Dept Public Health Stats--incidence of death due to heart disease in 10 - 19 yr olds, 2004 = 6.3%) (Medium term outcome)
3	Life expectancy (AL Dept Public Health special report-- 1998, 74 yrs). Program success will be indicated by maintenance or increase in life expectancy in AL. (Long-term outcome)
4	New and enhanced product(s) with improved nutritional value. (Medium term outcome)

Outcome #1

1. Outcome Measures

New professionals in the workforce with training in nutrition and in areas related to healthful lifestyle choices. (Medium term outcome)

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
721	Insects and Other Pests Affecting Humans
702	Requirements and Function of Nutrients and Other Food Components
701	Nutrient Composition of Food
703	Nutrition Education and Behavior
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sourc
724	Healthy Lifestyle

Outcome #2

1. Outcome Measures

Incidence of hypertension and obesity in teenagers (AL Dept Public Health Stats--incidence of death due to heart disease in 10 - 19 yr olds, 2004 = 6.3%) (Medium term outcome)

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	6	6

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
701	Nutrient Composition of Food
721	Insects and Other Pests Affecting Humans
703	Nutrition Education and Behavior
702	Requirements and Function of Nutrients and Other Food Components
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sourc
724	Healthy Lifestyle

Outcome #3

1. Outcome Measures

Life expectancy (AL Dept Public Health special report-- 1998, 74 yrs).
Program success will be indicated by maintenance or increase in life expectancy in AL. (Long-term outcome)

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	75	74

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sourc
721	Insects and Other Pests Affecting Humans
701	Nutrient Composition of Food
703	Nutrition Education and Behavior
702	Requirements and Function of Nutrients and Other Food Components

Outcome #4

1. Outcome Measures

New and enhanced product(s) with improved nutritional value. (Medium term outcome)

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
701	Nutrient Composition of Food
703	Nutrition Education and Behavior
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sourc
702	Requirements and Function of Nutrients and Other Food Components
721	Insects and Other Pests Affecting Humans

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Public Policy changes
- Competing Public priorities
- Populations changes (immigration,new cultural groupings,etc.)

Brief Explanation

Climate change and the major drought had much impact on the prevalence of insects that may affect disease spread.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Retrospective (post program)
- During (during program)

Evaluation Results

Research results were satisfactory

Key Items of Evaluation

Program #4

V(A). Planned Program (Summary)

1. Name of the Planned Program

Sustaining greater harmony between agriculture and the environment

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources			5%	5%
102	Soil, Plant, Water, Nutrient Relationships			6%	6%
112	Watershed Protection and Management			16%	16%
125	Agroforestry			4%	4%
133	Pollution Prevention and Mitigation			15%	15%
135	Aquatic and Terrestrial Wildlife			20%	20%
216	Integrated Pest Management Systems			21%	21%
403	Waste Disposal, Recycling, and Reuse			8%	8%
610	Domestic Policy Analysis			5%	5%
	Total			100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	22.1	10.0
Actual	0.0	0.0	22.1	10.0

2. Institution Name: **Alabama A&M University**

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	0	516647
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

2. Institution Name: **Auburn University**

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	0	902696	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	902696	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

2. Institution Name: **Tuskegee University**

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	0	0	204381
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Research at Tuskegee University continues to focus on the long-term effects of the application of broiler litter with high levels of trace elements to agricultural lands and its effect on ground water contamination.

Scientists at Auburn University are conducting research that focuses on water quality and waste management issues, ozone studies, improved farm management through precision agriculture and remote sensing.

Alabama A&M University researchers continue to evaluate the utilization of composted poultry litter on the production of alternative crops such as shiitake mushrooms and in agronomic crops such as cotton to improve productivity and find ways of disposal of poultry waste.

The metal loading in selected streams in the lower Tallapoosa basin is being evaluated by researchers at Tuskegee University to determine total trace and heavy metal levels in the water, sediments and fish in the four streams.

DNA fingerprints of fecal bacteria are being obtained by researchers at Auburn University for bacterial source tracking. Sources include wildlife as well as livestock and farm animals. This information can be used to develop effective pollution control strategies and ensure pollution control efforts are directed at the correct source(s).

Scientists at Alabama A&M University have evaluated the impact of poultry waste applied to land. The ultimate goal of this research is to define optimal levels of nutrient concentrations, as well as enteric pathogens for safe disposal and the improvement of soil and water quality.

Auburn researchers are developing methods for evaluating litter volatilization. Such techniques will also attribute to improvements in energy and resource utilization in poultry facilities to increase profitability without degrading air quality or animal well-being.

Research at Auburn University has pinpointed nitrogen rates needed for optimal establishment and maintenance of some of the newer cultivars of hybrid bermudagrass.

Termites are a serious threat to urban building structures. Auburn University researchers are developing measures to counter the rapid spread of termites.

Studies at Tuskegee University show that plastic mulch may reduce skinning of sweetpotatoes and reduce surface rot in storage. Studies also show that thermoplastic polyurethane film improves the soil solarization process better than the low-density polyethylene in Alabama and can be used effectively against soil borne pests of vegetable crop production.

Studies at Auburn University continue to evaluate insecticide use and cultivar selection on the intensity of tomato spotted wilt, the use of which has successfully led to declines in TSW occurrence.

Insect pests continue to be important production constraints on vegetable crops grown by limited resource farmers in many parts of the southern US. Research at Tuskegee University continues to seek improvement in the production and utilization of sweetpotatoes by reducing loss caused by the insects and diseases through an integrated pest management approach.

Auburn University researchers continue to work with forest industries in developing technologies, arising from precision agricultural applications, to assist with seedling counts during planting season.

The Eurasian collared-dove is a recent exotic introduction to Alabama that may compete with the native mourning dove. This competition could negatively impact the recreational and economic value of native species. Interactions among Eurasian collared-doves, mourning doves, and rock doves were studied to determine if the collared-dove is filling an unexploited niche or will detrimentally affect other species.

2. Brief description of the target audience

Producers, industry leaders, policy-makers, citizens, and related federal agency personnel.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	1200	9000	300	900
2007	1200	9000	300	900

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0

2007 : 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- publications

Year	Target	Actual
2007	22	30

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	Estimated tourism receipts = $7.6 billion in 2005. Success of this program will result in maintenance or increase in revenue (medium term outcome).
2	Fish consumption advisories in sampled waters = 26 instances in 2004 (ADEM water board). Success of this program will result in decline of water contaminants that accumulate in fish, and consumption advisories will also subsequently decline. (Long-term outcome)
3	Incidence of ground water contamination of ~ 5000 sampled sites = 20% in 2002-2003. Success of this program will result in a decline of contaminant incidence (medium term outcome).

Outcome #1

1. Outcome Measures

Estimated tourism receipts = $7.6 billion in 2005. Success of this program will result in maintenance or increase in revenue (medium term outcome).

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
125	Agroforestry
135	Aquatic and Terrestrial Wildlife
216	Integrated Pest Management Systems
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation
610	Domestic Policy Analysis
403	Waste Disposal, Recycling, and Reuse
101	Appraisal of Soil Resources

Outcome #2

1. Outcome Measures

Fish consumption advisories in sampled waters = 26 instances in 2004 (ADEM water board). Success of this program will result in decline of water contaminants that accumulate in fish, and consumption advisories will also subsequently decline. (Long-term outcome)

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:
Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	25	20

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
133	Pollution Prevention and Mitigation
403	Waste Disposal, Recycling, and Reuse
135	Aquatic and Terrestrial Wildlife
101	Appraisal of Soil Resources
112	Watershed Protection and Management
125	Agroforestry
610	Domestic Policy Analysis
216	Integrated Pest Management Systems

Outcome #3

1. Outcome Measures
Incidence of ground water contamination of ~ 5000 sampled sites = 20% in 2002-2003. Success of this program will result in a decline of contaminant incidence (medium term outcome).

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management
125	Agroforestry
101	Appraisal of Soil Resources
216	Integrated Pest Management Systems
403	Waste Disposal, Recycling, and Reuse
610	Domestic Policy Analysis
133	Pollution Prevention and Mitigation
135	Aquatic and Terrestrial Wildlife

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programatic Challenges
- Populations changes (immigration,new cultural groupings,etc.)

Brief Explanation

Climate change has had a major impact on the environment.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Retrospective (post program)
- During (during program)

Evaluation Results

Satisfactory results were achieved.

Key Items of Evaluation

Program #5

V(A). Planned Program (Summary)

1. Name of the Planned Program

Supporting and enhancing economic opportunities and self-empowerment for families and communities

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
123	Management and Sustainability of Forest Resources			15%	15%
134	Outdoor Recreation			3%	3%
802	Human Development and Family Well-Being			25%	25%
803	Sociological and Technological Change Affecting Individuals,			19%	19%
804	Human Environmental Issues Concerning Apparel, Textiles, a			8%	8%
805	Community Institutions, Health, and Social Services			11%	11%
806	Youth Development			19%	19%
	Total			100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	5.8	8.8
Actual	0.0	0.0	5.8	8.8

2. Institution Name: **Alabama A&M University**

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	0	334301
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

2. Institution Name: **Auburn University**

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	0	236906	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	236906	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

2. Institution Name: **Tuskegee University**

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	0	0	545016
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Alabama is 45% rural. The rural Black Belt counties of Alabama pose a unique challenge for the land-grant system due to the demographic, social, and economic distinction of the region. The well-being and societal contributions of this population hinges on having viable communities, businesses and economies. This viability becomes significantly important in rural communities where the majority of the residents are poor.

Research at Tuskegee University continues to focus on the assessment of the current measures for economic growth, equity issues and quality of life indicators as elements of sustainable rural development in the Black Belt of Alabama.

At Auburn University, research is being conducted on natural resource and environmental issues that affect the economic opportunities and quality of life in rural areas of Alabama. Another major research area is in the identification of issues that affect marriages and families in Alabama and to better understand the patterns of consistency and change in marriages.

Research at Alabama A & M University has been designed to ascertain the impact of technology and sustainable agriculture practices on the well-being of farmers, particularly small- and medium-sized farms in Alabama.

Investigations at Tuskegee University focused on critical factors necessary for sustainable rural community development including those that apply to resource development (e.g., land loss and retention), economic development (e.g., small business and micro enterprises), and socio-political development (e.g., access and equity issues). Sustainability of related farm and other small business operations depends on factors and program or policy initiatives that are undertaken by governments (federal, state and local), community-based organizations and engaged institutions such as Tuskegee University. Our programs have led to the development of the farmers markets in Tuskegee and Selma becoming more sustainable, with more produce being sold and receipts reported. There were 11 micro loans secured from out-of-state financial institutions through the SBA Community Express Program as well as 3 farm ownership loans, 17 operating loans, 7 equipment loans, 13 housing loans and 9 livestock loans.

Research at Auburn University is evaluating the unique needs and opportunities associated with timberland owners of 50 acres and less. Appropriate harvesting and wood processing technologies were identified to meet the needs of owners of small timberland tracts, and local farmers, in order that they might sell timber and enhance their economic status.

The Black Belt region in west Alabama is under very serious economic challenges due to strong international competition of imported catfish with the domestic catfish industry. Auburn University researchers are seeking alternative species for aquaculture to address the stiff competition. Bull minnows proved to be a viable alternative species for culture in low salinity water sources of the Alabama Black Belt. They reproduced successfully in several water sources, grew at acceptable rates and could be transported without difficulty. Market studies showed an unfulfilled demand that possibly can be met by production in the Alabama Black Belt.

Working with high schools through Alabama, Auburn University researchers developed and implemented a curriculum (“Relationship Smarts”) that addresses healthy relationship development. Results indicate that the adolescents who participated in the curriculum developed more accurate and realistic attitudes about dating relationships, and felt that they had gained skills in communicating and managing conflict in dating relationships.

2. Brief description of the target audience

Extension personnel, community leaders, educators, 4H, youth centers.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	1100	33000	900	3300
2007	1100	33000	900	3300

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- publications

Year	Target	Actual
2007	7	7

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	High school graduation rate (88.8% AL Dept. Educ. 2004-2005, from drop-out rate = 11.18%). Improvements in community and family integrity should increase this (medium term outcome).
2	Educational attainment (post secondary) (AL Dept Educ., Fall 2005, 55.8% of all high school graduates were enrolled in AL colleges). Success of this program should increase this (long-term outcome).
3	The number of small businesses should increase with success of this program. In 2001, US Bureau of Labor states that 229.7 (in thousands) 'non-employer' firms were existent in AL (medium term outcome).
4	AL Dept. Health notes that 4 of Alabama's 67 counties have fewer than 3 physicians per 10,000 residents. Success of this program should increase this (medium term outcome).

Outcome #1

1. Outcome Measures

High school graduation rate (88.8% AL Dept. Educ. 2004-2005, from drop-out rate = 11.18%). Improvements in community and family integrity should increase this (medium term outcome).

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	89	89

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development
805	Community Institutions, Health, and Social Services
803	Sociological and Technological Change Affecting Individuals, Families and Communities
134	Outdoor Recreation
802	Human Development and Family Well-Being
123	Management and Sustainability of Forest Resources
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

Outcome #2

1. Outcome Measures

Educational attainment (post secondary) (AL Dept Educ., Fall 2005, 55.8% of all high school graduates were enrolled in AL colleges). Success of this program should increase this (long-term outcome).

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:
Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	56	56

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
134	Outdoor Recreation
802	Human Development and Family Well-Being
806	Youth Development
123	Management and Sustainability of Forest Resources
805	Community Institutions, Health, and Social Services
803	Sociological and Technological Change Affecting Individuals, Families and Communities
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

Outcome #3

1. Outcome Measures
The number of small businesses should increase with success of this program.
In 2001, US Bureau of Labor states that 229.7 (in thousands) 'non-employer'
firms were existent in AL (medium term outcome).

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	230	230

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
134	Outdoor Recreation
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families and Communities
805	Community Institutions, Health, and Social Services
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
806	Youth Development
123	Management and Sustainability of Forest Resources

Outcome #4

1. Outcome Measures

AL Dept. Health notes that 4 of Alabama's 67 counties have fewer than 3 physicians per 10,000 residents. Success of this program should increase this (medium term outcome).

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
134	Outdoor Recreation
805	Community Institutions, Health, and Social Services
802	Human Development and Family Well-Being
806	Youth Development
803	Sociological and Technological Change Affecting Individuals, Families and Communities

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Public Policy changes
- Government Regulations
- Competing Public priorities

Brief Explanation

Climate change and soaring energy costs have had a major impact on the rural economy and self-empowerment, families, and rural communities.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Retrospective (post program)
- During (during program)

Evaluation Results

Satisfactory results were achieved.

Key Items of Evaluation